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REMARKS

The amendments to the claims find support in the original clams and specification. The amendment to claim 1 finds support in original claim 2, and at page 6, lines 8-9 of the specification. The amendments to claims 8 and 12 correct dependencies accordingly. The amendments to claims 11 and 12 clarify antecedent basis. None of the claims contain new matter. All of the foregoing amendments are presented to further clarify the scope of the invention and in no way represent acquiescence to the rejections made by the Examiner.

The December 22, 2003 Official Action and references cited therein have been carefully reviewed. In light of the amendments presented herewith and the following remarks, favorable reconsideration and allowance of the application are respectfully requested.

At the outset, the Examiner has withdrawn the rejection of claims 17 and 30 under 35 U.S.C. 112 first paragraph, as well as the rejection of claims 1 and 7 as allegedly anticipated by Coruzzi et al.

The Examiner has newly rejected claims 1 and 7 under 35 U.S.C. §112 first paragraph as allegedly lacking written description. It is the Examiner's position that the teachings of the specification do not provide sufficient description for a sequence which has at least 70% sequence identity to SEQ ID NO:3, or a sequence which hybridizes to SEQ ID NO:3 under conditions of moderate stringency.

Next, the Examiner indicates that claim 7 is newly rejected under 35 U.S.C. §112 first paragraph as allegedly lacking the full scope of enablement. The Examiner states that it would require undue experimentation to determine which polynucleotides share 70% sequence identity with SEQ ID NO:3, or will hybridize to SEQ ID NO:3 under low stringency conditions, and still have glutamine synthetase activity.

The Examiner then rejects claims 7, 11-12, 16, 18, 20-22, and 29 under 35 U.S.C. §112 second paragraph for allegedly failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Next, the Examiner has maintained the rejection of claims 1, and 7-11 under 35 U.S.C. 103(a) as allegedly unpatentable over Coruzzi et al. (Supra) in view of Canton et al., Plant Molecular Biology, 1993 Vol. 22, pp 819-828. The Examiner has newly added claim 2 to this rejection.

The foregoing constitutes the entirety of the rejections set forth in the December 22, 2003 Official Action. In light of the present amendments and the following remarks, each of the above-noted rejections under 35 U.S.C. §§ 112, first and second paragraphs, and 103(a) is respectfully traversed.

REQUEST FOR WITHDARWAL OF THE FINALITY OF THE OFFICIAL ACTION

In the final paragraph of the office action, the Examiner indicates that the new rejections made in the action were necessitated by applicant's amendments, and that accordingly, the action is being made final. Applicants respectfully disagree with this assertion.

MPEP 706.07(A) Cleary establishes when an action can be made final:

> Under present practice, second or any subsequent actions on the merits shall be final, except where the examiner introduces a new ground of rejection that is neither necessitated by applicant's amendment of the claims nor based on information submitted in an information disclosure statement filed during the period set forth in 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p)… Furthermore, a second or any subsequent action on the merits in any application or patent undergoing reexamination proceedings will not be made final if it includes a rejection, on newly cited art, other than information submitted in an information disclosure statement filed under 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17 (p), of any claim not amended by applicant or patent owner in

spite of the fact that other claims may have been amended to require newly cited art.

Both rejections under 35 U.S.C. §112 first paragraph are new grounds of rejection. Further, claim 2 was newly added to the §103 rejection. All of these rejections are based on features of the claims which were not amended, or were amended with an equivalent recitation (i.e. SEQ ID NO:3 replaced a reference to a specific Genebank accession number, or the features of claim 4 were added to claim 1). The new §112 rejections specifically cite the percent homology language, and hybridization language as the reason for rejection. This language has not been amended. Further, claim 2 has been added to the §103 rejection, but the only amendment to claim 2 was to recite a SEQ ID NO in place of the Genebank Accession number. Applicants submit that this change merely recites an equivalent name, and should not provide new grounds for rejection.

Accordingly, applicant's amendments did not necessitate the new grounds of rejection set forth by the Examiner, and for that reason, applicants respectfully request that finality of the December 22, 2003 official action be withdrawn.

CLAIMS 1 AND 7 ARE FULLY DESCRIBED BY THE SPECIFICATION

Claims 1 and 7 are rejected under 35 U.S.C. §112 first paragraph as allegedly lacking written description. It is the Examiner's position that the teachings of the specification do not provide sufficient description for a sequence which has at least 70% sequence identity to SEQ ID NO:3.

At the outset, applicants wish to note that this ground of rejection was withdrawn in the previous office action (see office action mailed 4/11/2003, page 2). It is not clear to applicant why this ground of rejection has been reinstituted.

Again, the Examiner alleges that the disclosure only describes the glutamine synthetase coding sequence disclosed in Canton et al. Plant Molecular Biology, 22 (5), 819-828,

1993, and that the instant disclosure fails to describe the composition or structure of other glutamine synthetase cDNAs or any nucleic acids having 70% sequence identity to any cDNAs. The Examiner cites University of California V. Eli Lilly and Co., 43 USPQ2d 1398 (Fed. Cir. 1997) as support for this contention.

Applicants respectfully traverse this rejection as it applies to the newly amended claims. In University of California V. Eli Lilly and Co., the courts addressed the manner by which a genus of cDNAs might be described: "A description of a genus of cDNAs may be achieved by means of a recitation of a representative number of cDNAs, defined by nucleotide sequence, falling within the scope of the genus or of a recitation of structural features common to the members of the genus, which features constitute a substantial portion of the genus."

Applicants submit that the instant claims clearly meet this requirement. First, the structure of glutamine synthetase is clearly described. Genbank Accession No. X69822 (now claimed as SEQ ID NO:3) is explicitly disclosed in the instant application, and provides the specific structure of the claimed genus in question. Further, the function of glutamine synthetase is known, and has been correlated to a specific activity (relevant identifying characteristics) in the instant claims, which recite that the transfection of plants with a construct for over expressing glutamine synthetase results in increased growth rate and productivity. Thus the claims meet the requirement that a structure is described, and that the described structure is correlated to a function.

Accordingly, applicants submit that the claims are adequately described. Nonetheless, in the interest of expediting prosecution, and without acquiescing to the Examiner's rejection, applicants have amended the claims to

eliminate the language found objectionable by the Examiner. Accordingly, applicants submit that the rejection should be withdrawn.

CLAIM 7 IS FULLY ENABLED BY THE SPECIFICATION

Claim 7 is newly rejected under 35 U.S.C. §112 first paragraph as allegedly lacking the full scope of enablement. The Examiner states that it would require undue experimentation to determine which polynucleotides share 70% sequence identity with SEQ ID NO:3, or will hybridize to SEQ ID NO:3 under low stringency conditions, and still have glutamine synthetase activity.

Again, applicants note that this ground of rejection was withdrawn in the previous office action (see office action mailed 4/11/2003, page 2). It is not clear to applicant why this ground of rejection has been reinstituted, as the scope of the claims is the same as claims previously indicated as enabled.

The MPEP clearly sets forth that experimentation is permitted in an enabled invention, provided that experimentation is merely routine. See MPEP 2164.06:

> "The quantity of Experimentation needed to be performed by one skilled in the art is only one factor involved in determining whether "undue experimentation" is required to make and use the invention. In re Colianni, 561 F.2d 220, 224, 195 USPQ 150, 153 (CCPA 1977). "'The test is not merely quantitative, since a considerable amount of experimentation is permissible, if it is merely routine, or if the specification in question provides a reasonable amount of guidance with respect to the direction in which the experimentation should proceed.'" In re Wands, 858 F2.d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988)(citing In re Angstadt, 537 F.2d 489, 502-4, 190 USPQ 214, 217-219 (CCPA 1976))."

It is respectfully submitted that in the instant case, the experimentation required to determine sequences which meet the limitations of the claims is merely routine. The skilled

person could readily determine other glutamine synthetase sequences, since the sequence and enzymatic function of the instant glutamine synthetase is known and disclosed in the instant application, and because methods of conservative amino acid substitution, computer modeling, sequence database searching and screening techniques allow the skilled artisan to rapidly, efficiently, and routinely screen polynucleotides and polypeptides for variants, orthologs and homologs of a known sequence. Therefore it would require mere routine experimentation to screen for variants of the instant glutamine synthetase coding sequence, or others which have the same activity.

Accordingly, applicants submit that the specification enables the full scope of the claims. Nonetheless, without acquiescing to the Examiner's rejection, applicants have amended claim 7 to eliminate the % identity language. Accordingly, applicants submit that the rejection should be withdrawn.

CLAIMS 7, 11, 12, 16, 18, 20-22, AND 29 AS AMENDED FULLY COMPLY WITH THE DEFINITIVENESS REQUIREMENT OF U.S.C. §112, SECOND PARAGRAPH

Claims 7, 11-12, 16, 18, 20-22, and 29 are rejected under 35 U.S.C. §112 second paragraph for allegedly failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

First, the Examiner indicates that in claim 7, "glutamate" should be glutamine" to clarify antecedent basis. Applicants have canceled claim 7, and accordingly request withdrawal of the rejection.

Next, claim 11 is rejected as allegedly lacking antecedent basis, because according to the Examiner, "the" should recite "a". Accordingly, applicants have amended the

claim to clarify the antecedent basis, in accordance with the Examiner's helpful suggestion.

Claim 12 is rejected as allegedly lacking antecedent basis, because according to the Examiner, "said plant" should recite "a plant". Therefore applicants have amended the claim to clarify the antecedent basis, in accordance with the Examiner's helpful suggestion.

Additionally, the Examiner maintains the rejection of claim 21 asserting that the phrase "a reproductive unit" is indefinite. In the rebuttal to Applicants' arguments, the Examiner states that the term "reproductive unit" is not defined in the art (see official action mailed December 22, 2003, page 7). However, contrary to the Examiner's assertion, the term is well known in the art. This is supported by the evidence submitted with applicant's last response. The Examiner did not address this evidence. Again, see U.S. Patent Nos. 5,861,542 and 6,194,167. In the '542 patent, a "reproductive unit" of a plant was defined as "any totipotent part or tissue of the plant from which one can obtain a progeny of the plant, including, for example, seeds, cuttings, buds, bulbs, somatic embryos, etc." In the '167 patent, the term "a reproductive unit" of a plant was similarly defined as "any totipotent part or tissue of the plant from which one can obtain a progeny of the plant, including, for example, seeds, cuttings, tubers, buds, bulbs, somatic embryos, cultured cells (e.g., callus or suspension cultures), etc." In further support of Applicants' position, submitted herewith are a series of web pages relating to plants and flowers demonstrating the phrase "reproductive unit" is routinely used in the art. It is a well settled premise in patent law that "a patent need not teach, and preferably omits, what is well known in the art." Lindemann Maschinenfabrik v. American Hoist and Derrick, 221 USPQ 481, 489 (Fed. Cir. 1984). The skilled person in the art of plant propagation readily

appreciates that the phrase encompasses any unit from a plant from which progeny may be obtained.

If the Examiner objects to the term "reproductive unit" because it encompasses seeds, flowers, and sexual gametophytes, applicants wish to remind the Examiner that breadth of a claim is not proper grounds of rejection under 112 second. "Breadth is not to be equated with indefiniteness. In re Miller, 441 F.2d 689, 169 USPQ 597 (CCPA 1971). If the scope of the subject matter embraced by the claims is clear, and if applicants have not otherwise indicated that they intend the invention to be of scope different from that defined in the claims, the claims comply with 35 U.S.C. 112 second paragraph."

In light of all the foregoing, it is evident that the metes and bounds of the phrase "reproductive unit" are clear to those skilled the relevant art.

In view of the forgoing remarks and the claim amendments, it is respectfully submitted that claims 7, 11-12, 16, 18, 20-22, and 29 as amended fully comply with the requirements set forth in 35 U.S.C. § 112, second paragraph. Accordingly, withdrawal of the above-mentioned rejections is respectfully requested.

AMENDED CLAIMS 1, 2 AND 7-11 ARE NOT UNPATENTABLE OVER CORUZZI ET AL. IN VIEW OF CANTON ET AL. AND APPLICANT'S ADDMISSION

Claims 1, and 7-11 are rejected under 35 U.S.C. 103(a) as allegedly unpatentable over Coruzzi et al. in view of Canton et al., and applicant's admission. The Examiner has newly added claim 2 to this rejection.

The Examiner first asserts that Coruzzi et al. teach a construct comprising glutamine synthetase (GS) from pea, for increasing nitrogen metabolism. The Examiner acknowledges that Coruzzi et al. do not teach GS from pinus, and therefore

provides Canton et al., which teaches the GS from pinus. It is the Examiner's position that the pea and pinus GS1 enzymes are functional equivalents, and thus it would be obvious to substitute one for the other.

In response, applicants submit that the Examiner's position is incorrect. That being the case, there is no motivation whatsoever to combine these references.

> See MPEP 2143 THE PRIOR ART MUST SUGGEST THE DESIRABILITY OF THE CLAIMED INVENTION
>
> " 'In determining the propriety of the Patent Office case for obviousness in the first instance, it is necessary to ascertain whether or not the reference teachings would appear to be sufficient for one of ordinary skill in the relevant art having the reference before him to make the proposed substitution, combination, or other modification.' In re Linter, 458 F.2d 1013, 1016, 173 USPQ 560, 562 (CCPA 1972)...Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art."

In the instant case, there is no teaching, suggestion, or motivation in either Coruzzi et al. or Canton et al. to modify the vectors of Coruzzi et al., with the sequence of Canton et al. In fact, given the differences in expression pattern and expression levels between GS from pea and pine, it would be counterintuitive to combine these references.

As set forth in the previous response, it is well known in the art that GS from angiosperm and gymnosperm plants are biochemically and functionally distinct in their regulation and expression patterns. In angiosperm plants, e.g., pea, there are two major forms of GS: a cytosolic form expressed in roots and vascular tissues, such as GS1, and a plastid form expressed in photosynthetic tissues, such as GS2. In gymnosperm plants, e.g., pine, several GS1 genes have been

characterized, but GS2, the plastid form observed in angiosperm plants, does not exist. Further GS1a from pine has features quite distinct from GS1 of angiosperm plants. For example, GS1a from pine is expressed in photosynthetic tissues and its expression is correlated with plastid development (Canovas et al., Planta 1991;185:372-378; Canton et al., Plant Mol. Biol. 1993;22:819-828; and Garcia-Gutierrez et al., Plant J. 1998;13:187-199). Neither of these features of pine GS1a is shared with other GS1 enzymes from angiosperm species, such as pea. Inasmuch as it cannot be reasonably maintained that these enzymes are equivalent, Applicants submit the obviousness rejection is improper and should be withdrawn.

The Examiner next submits that using specific sequence parameters, the sequence of Coruzzi et al., is at least 70% similar to the instant SEQ ID NO:3. Applicants have amended the claim to clarify that nucleic acid encodes glutamine synthetase from gymnosperm *Pinus sylvestris* having the sequence of SEQ ID NO:3. Accordingly, this point is moot.

Finally, the Examiner asserts that the improved features of the instant invention are not recited in the claims (improved accumulation of pine GS1 in photosynthetic tissue and higher transformation efficiency).

Applicants submit that inhenent features of the invention need not be recited in the claims.

> The advantages inherent in a process which render it patentable over the prior art need not be recited in the claims thereto. In re Estes (CCPA 1970) 420 F2d 1397,164 USPQ 319.

As described above, claim 1 has been amended and now recites the feature that the nucleic acid encodes glutamine synthetase from gymnosperm *Pinus sylvestris* having the sequence of SEQ ID NO:3. As set forth in the last response, the specific construct now recited in claim 1 has superior properties. Specifically, as disclosed in the paragraphs

which begin at page 13, line 21, and end at page 14, line 37 of the present application, when the instantly claimed vectors are transferred into angiosperm plants, the gymnosperm GS1 transcripts are correctly processed by the angiosperm translational machinery and the pine GS1 polypeptide is detectable both in leaf regions enriched in photosynthetic cells and in vascular elements. This unusual accumulation of the pine GS1 in photosynthetic tissues could not have been predicted from the normal accumulation of the endogenous angiosperm enzyme in vascular tissue only. Further, Coruzzi et al. have disclosed that when the expression vectors containing angiosperm GS coding sequences, GS3A or GS1A, are transferred into *Nicotiana tabacum* line SR1, only 6/13 or 5/8, respectively, of the transgenic plants demonstrate overexpression of GS activity (See column 26, lines 19-65 and column 27, lines 25-40 of Coruzzi). However, the transformation efficiency of the presently claimed vectors is unexpectedly higher, nearly 100%. Accordingly, the construct of claim 1 exhibits unexpected superior properties. All other claims depend from claim 1.

In summary, the claimed invention is not obvious over Coruzzi et al. in view of Canton et al., because the combination of Coruzzi et al., and Canton et al. is improper, and because the instant invention exhibits improved accumulation of pine GS1 in photosynthetic and vascular tissue and higher transformation efficiency, which was unexpected. Withdrawal of the rejection is respectfully requested.

CONCLUSION

No new matter has been introduced into this application by reason of any of the amendments presented herewith. Moreover, none of the present claim amendments is believed to constitute a surrender of any originally claimed subject matter, or a narrowing of the claims in order to establish

patentability. The effect of these amendments is merely to make explicit that which was implicit in the claims as originally worded.

It is respectfully requested that the amendments presented herewith be entered in this application, since the amendments are primarily formal, rather than substantive in nature. This amendment is believed to clearly place the pending claims in condition for allowance. In any event, the claims as presently amended are believed to eliminate certain issues and better define other issues which would be raised on appeal, should an appeal be necessary in this case.

It is respectfully urged that the rejections set forth in the December 22, 2003 Official Action be withdrawn and that this application be passed to issue. In the event the Examiner is not persuaded as to the allowability of any claim, and it appears that any outstanding issues may be resolved through a telephone interview, the Examiner is requested to telephone the undersigned attorney at the phone number given below.

Respectfully submitted,

DANN, DORFMAN, HERRELL AND SKILLMAN
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By 
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Enclosure: Web pages describing a "reproductive unit"

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Plant Anatomy Glossary

axil - the angle between the upper side of the the stem and a leaf, branch, or petiole.

axillary bud - a bud that develops in the axil.

flower - the reproductive unit of angiosperms.

flower stalk - the structure that supports the flower.

internode - the area of the stem between any two adjacent nodes.

lateral shoot (branch) - an offshoot of the stem of a plant.

leaf - an outgrowth of a plant that grows from a node in the stem. Most leaves are flat and contain chloroplasts; their main function is to convert energy from sunlight into chemical energy (food) through photosynthesis.

node - the part of the stem of a plant from which a leaf, branch, or aerial root grows; each plant has many nodes. Label the two lower nodes (the first and second nodes) on the plant diagram.

petiole - a leaf stalk; it attaches the leaf to the plant.

root - a root is a plant structure that obtains food and water from the soil, stores energy, and provides support for the plant. Most roots grow underground.

root cap - a structure at the ends (tips) of the roots. It covers and protects the apical meristem (the actively growing region) of the root.

stem - (also called the axis) is the main support of the plant.

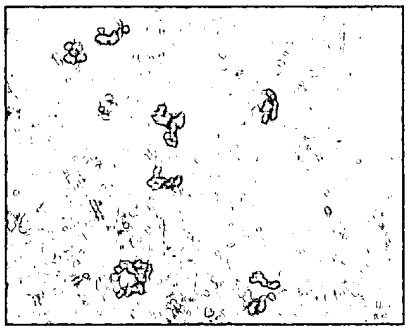
tap root - the main root of some plants; the tap root extends straight down under the plant.

terminal bud - a bud located at the apex (tip) of the stem. Terminal buds have special tissue, called apical meristem, consisting of cells that can divide indefinitely.

Enchanted Learning Search

Flowering

What are the Main Parts of a Flower?



hi-res image

Flowers of both monocots (such as grasses) and dicots (such as mustard, flax, legumes) generally contain both the pistil and stamens. The pistil is the female structure; the stamen, the male structure. In many monocots, flower parts occur in 3s and multiples of 3. In dicots, flower parts are in 4s or 5s and multiples of 4 and 5.

Flower parts include:

- sepals - usually leaf-like; green, and protect the bud as the flower develops within
- petals - structures of which the size, shape and color accounts for the attractiveness to a specific pollinator. Wind-pollinated flowers may lack petals.
- pistil - lies within the center of the petals; vase-like in appearance. May be simple or compound and contains a single reproductive unit called a carpel which usually has three parts; the stigma (enlarged, sticky knob); the style (slender stalk); the ovary (an enlarged base) The ovary contains ovules (where production of megaspores occurs)
- stamen - made of 2 parts; anther (saclike container in which pollen grains develop) and the filament (slender stalk)

The Flowers of Grasses

The flowers of crops such as wheat and other cereals have specific structures not identified in the general description of a flower. An individual grass flower is called a floret and consists of the lemma and palea (modified leaves referred to as bracts) which house a branch of inflorescence in the axil of the two structures. These modified leaves collectively are called the hull. As in other flowers, a pistil and stamens are present. Three stamens occur in common cereals. Other structures, called glumes, are bracts which enclose one or more florets. A spikelet is a unit of inflorescence. Most cereals are self-pollinating or pollinated by the wind.

When do flowers develop on a plant?

Plants go through various stages of development; from germination and young seedling to a mature, flowering plant which eventually produces seeds. Flowering represents a series of events which occur

differentiation
pistils and stamens -- and the accessory flower parts -- petals and sepals. The start of flowering is affected by several factors.

- day-length
- temperature
- nutrients
- stress
- age of plant

The growth response of a plant to light and dark periods is referred to as photoperiodism. It has been found that plants flower in response to the length of dark -- and that flowering can be induced in certain varieties by adjusting the time the plant is exposed to the dark. Plants may be classified as long-day, short-day or day-neutral.

Temperature has both direct and indirect effects on flowering. Certain plants will flower if exposed to lower temperatures, regardless of the length of day. Some plants flower as a result of a combination of day-length and temperature. The response of the plant to temperature is called **thermoperiodism.**

The amount of nutrients available influences flowering. The most significant nutrient that influences flowering is nitrogen (in combination with other factors). Plants may begin flowering due to stress, of which nutrient and moisture supply are determining factors.

Certain plants flower continuously (indeterminate) if conditions are right and some flowering habits are short-lived. A plant's age, then helps determine the flowering habit.

What are perfect and incomplete flowers?

Flowers that contain both female and male parts are termed **perfect.** Flowers that contain only male or female structures are called **incomplete.** Incomplete flowers may be either **pistillate** (only female structures) or **staminate** (only male structures). Female and male flowers may be found on the same plant. These types of plants are termed **monoecious,** if the flowers are found in different locations on the plant. If the incomplete flowers are found on different plants, the plants are referred to as **dioecious.** An example of a monoecious plant is corn and a dioecious plant is the saskatoon berry.

Updated Dec 14 2002

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ASEXUAL REPRODUCTION

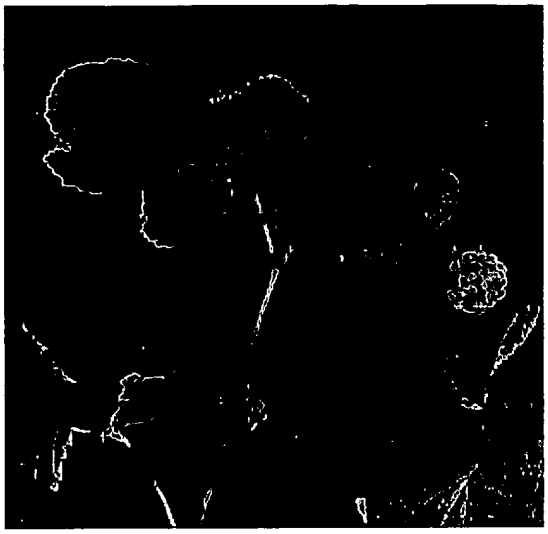
Any reproductive process that does not involve meiosis or syngamy is said to be asexual, or vegetative. The absence of syngamy means that such an event can occur in the sporophyte generation or the gametophyte stage. Because of the lack of new genetic material, an organism clones itself through this process and makes genetically identical organisms. This can be advantageous in some circumstances, but deleterious in others, depending on how the makeup of the plant suits its ecosystem. There are a few major ways in which plants asexually reproduce in their life cycles to secure future generations.

New plants can grow by the separation of parts of the original plant. When fragmentation, or division, occurs, an offspring is created by the breakup of a single part of the plant. By planting parts of the tuber of a potato, one can create new organisms with the same genetic makeup. When weeds are broken apart, they can regrow from each fragmented underground stem. In *Marchantia*, fragmentaion of the thallus gives rise to vegitative reproduction. When rain drops hit the plants, these structures are splashed out and may germinate into completely new plants. With these vegetative structures, many clones can be formed from one original parent. Bulbs and Rhizomes are also examples of asexual reproduction.

Special dispersal structures such as a capsule and a hood, and mini adults may also aid a plant when it reproduces asexually. Gemma cups are an example of a dispersal structure that leads to a genetically identical organism. With mini-adults, the morphology of the reproductive unit is similar to that of the parent. A plant may produce plantlets (mini plants) on its stems or leaves that will later germinate into clones of the original.

Finally, some plants have developed a way to produce seeds without their flowers being fertilized. In *apomixis*, an embryo is created from a diploid cell in the ovule. Then the ovules mature into seeds. The dandelion is one plant that uses this form of vegitative reproduction.

Asexual reproduction can be advantageous and/or disadvatageous. One positive aspect is that it can create individuals rapidly and in large quantities. Secondly, bypassing the sexual process can help a plant in times of dryness since motile sperm require water to fertilize the egg. Another advantage lies in the fact that plants with the desired characteristics can be cloned for economic reasons (agriculture). However, if something goes wrong, such as as the occurance of a fatal mutation, the whole society of clones can be terminated. For this reason, farmers are careful in determining how to propagate their vegetation. In conclusion, the asexual process of reproduction is an important one to plants.



techniques.

LIFE CYCLES

Meiosis and Syngamy | Gametes | Evolution of Life Cycles |
Haploid Life Cycle	Diploid Life Cycle	Haploid-Diploid Life Cycle
Ecology of Reproduction	Asexual Reproduction	Summary
Sources	G lossary